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Phase Two - Days 11

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Phase Two, Analysis (Why It Happened)

- **You've Gathered the Evidence, now you need to get past the WHAT to the *WHY***
- **During the WHAT Phase, SIB Just Took in Data, Now Need to Generate Data by:**
  - **Continuing Initial and Follow-up Interviews**
  - **Data Review (MX Records, FEFs, Medical Records, etc)**
  - **Tasking ALC/Contractor Engineers for testing and analysis**
  - **SIB begins to deliberate to tie all the gathered information together**

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Days 11-20 Analysis

- **Evidence Analysis is taking place either…**
  - **In the SIB “offices”**
  - **At mishap site**
  - **In a local hangar**
  - **At the contractors/experts**

Bottom Line…..

Know where aircraft parts are and who is doing what to them!

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Days 11-20 Analysis

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Days 11-20 Analysis

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Days 11-20 Analysis

- If the evidence is time critical (CVR/DFDR) or “key” to the investigation (fuel pump, turbine blade, etc.) send a board member with it
- Stay on top of technical experts to get their reports
- Part One should be complete by days 16-20, except for possibly the technical reports
- SIB Should be ruling In/Out theories at this time
- IO should start writing Tab T during this period
- BP should be working a Briefing during this period

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Days 11-20 Analysis

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Days 11-20
Getting to the Why!

- **Plot Out Mishap Sequence**

  - Serves As a Starting Point for Identifying Findings

  - Will Help In Identifying Both Factors and Non- Factors

- **Now for the White Boards……**

  - Have Recorder Transpose To Computer Document

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Days 11-20 Cause and Effect Diagram

- One of Several Approaches/Techniques to help Identify Root Causes
- Isolates Areas Needing More Data
- Use 5 Ms
  - Man, Machine, Media, Mission, Mgmt
- Continually Add Factors on Each Leg
  - Some Fall Under More Than One Category

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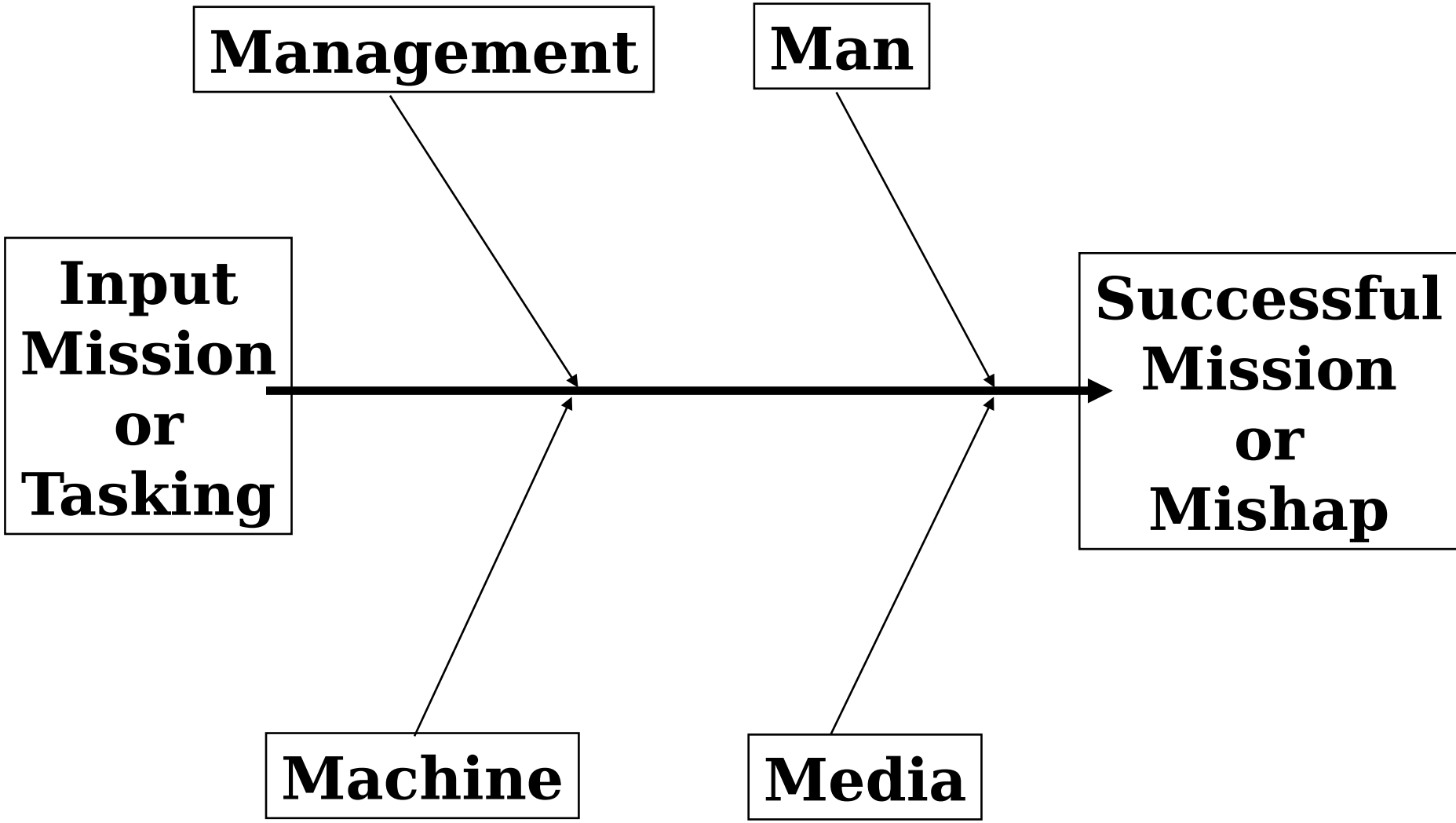
Cause and Effect Diagram



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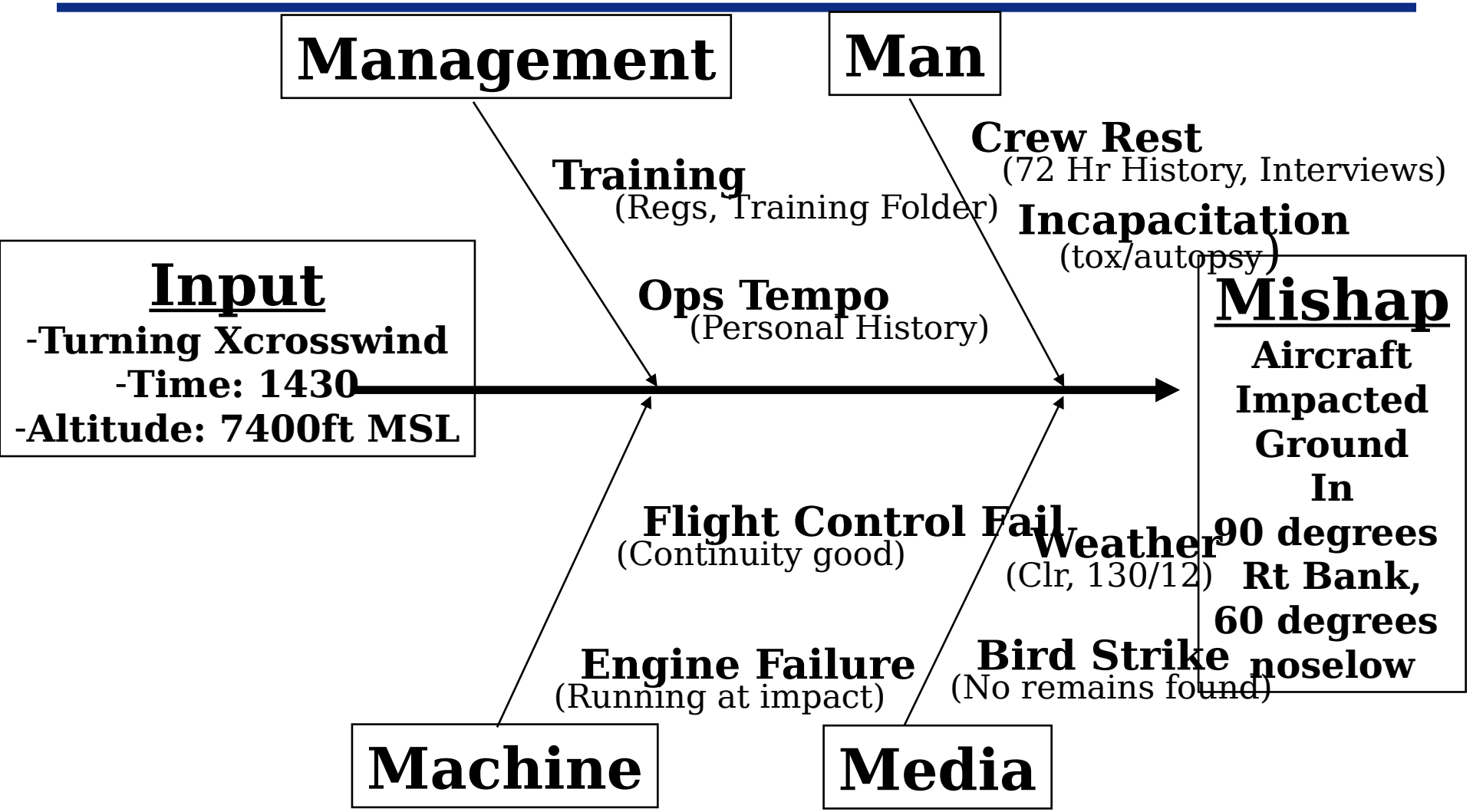
Cause and Effect Diagram



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Days 11-20 Fault Tree Analysis (FTA)

- Starts With the Significant Event
- List Possible Causes at Next Level
- Each Cause Now Becomes a Significant Event With Analysis Listed Below
- For Each Potential Cause, List Probability
- When Probability Nears Zero, You Are Done in That Direction
- Visually Shows Logic
- Brainstorm All Possible Causes

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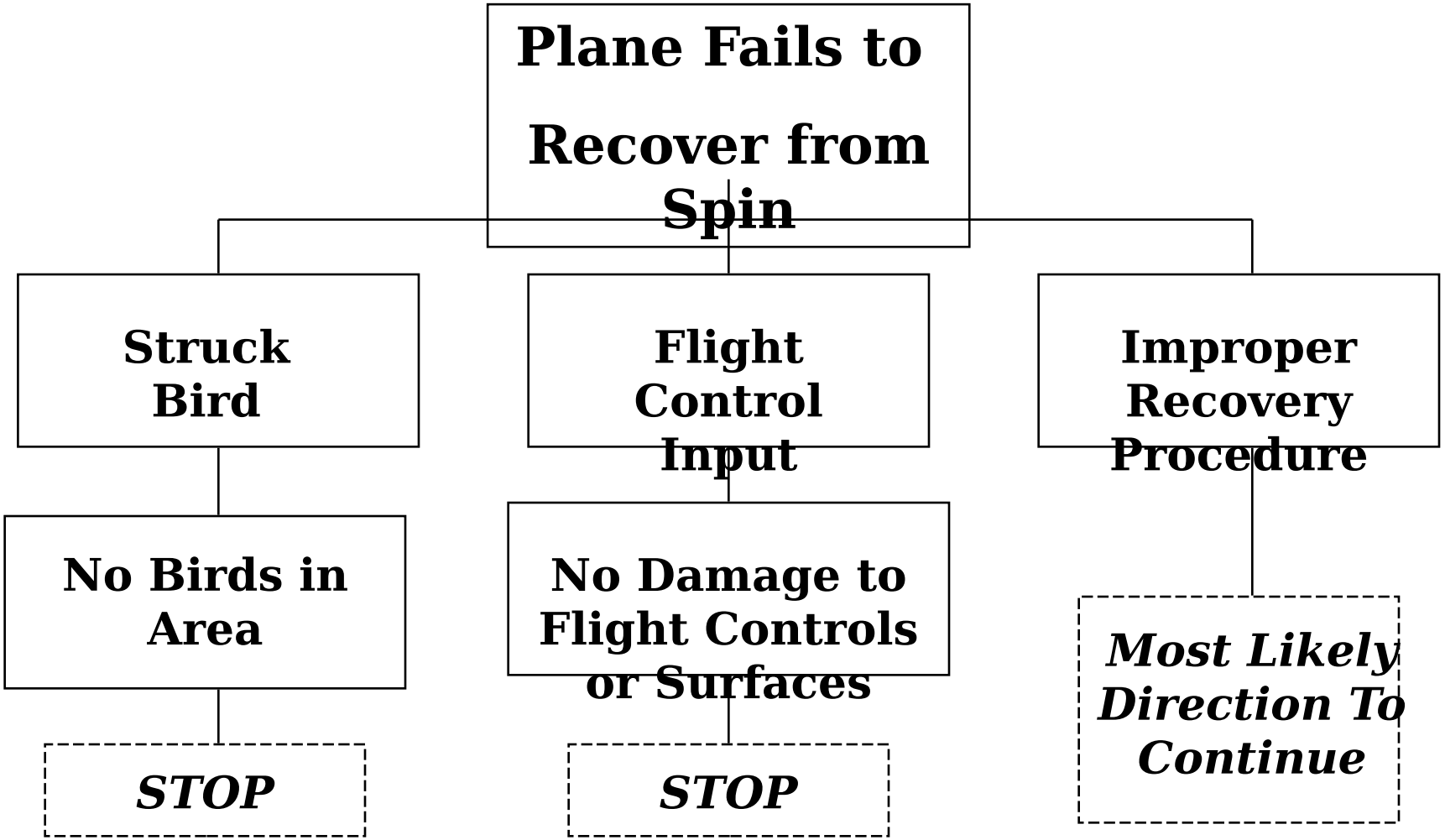
Fault Tree Analysis



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Days 11-20
Start a 3-Column List

- **What We Know:**
  - Verified Facts
- **What We Believe**
  - Presumptions Not Yet Confirmed, but Necessary to Proceed With Further Investigation
  - Also Called Mini-Hypotheses
- **What We Need to Know:**
  - Facts Required to Proceed
  - Evidence Needed to Prove / Disprove Beliefs

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Days 11-20
Three Column List

What We Know	What We Believe	Need To Know
MA was A-10, tail # 80-251 Mishap occurred at 2235 L	No MX problems with MA MP may have had SD	MX history, recent MX, teardown results What were the WX conditions?

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Days 11-20 Interviews

- Interviews will be continuing, then wrapping up in Phase II
- Purpose of interviews:
  - Find out what the witness knows
  - Establish a direction for the investigation
- Witness statements and physical evidence go hand-in-hand in determining the cause; they compliment or clarify each other
- Witnesses include: Surviving crew, MX, ATC, Eye Witnesses, Tech Experts, etc…

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Days 11-20 Witness Advisory

- **SIB Advises Each Person Giving Testimony:**
  - **The SIB is conducting the investigation solely for mishap prevention**
  - **The USAF will not release his/her statement outside the USAF safety community, nor use it as evidence in disciplinary actions or adverse administrative actions**
  - **The USAF will use his/her statement solely to determine factors relating to the mishap and prevent recurrence**

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Days 11-20 Witness Advisory

- **Investigators must read the following advisory to each witness, and <u>must read it onto all tape recordings of interviews:</u>**

"You are hereby advised that, as a witness to this investigation, your testimony will be used solely for mishap prevention purposes. Your statement will not be made available to anyone other than Air Force officials responsible for the assembly and approval of this investigation's report……may not be used as evidence …..in punitive actions ……such as a Flying Evaluation Board….."

See 91-204, Figure 2.6

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Days 11-20 Witness Advisory

- **Who can offer Privilege?**
  - **Primary duty safety personnel as members of the DCG**
  - **Designated ISB members**
  - **Designated SIB members**
- **Any statements Witnesses give to people other than safety personnel ARE NOT privileged and can be used against them--caution CC's not to ask**
- **Tell mishap participants not to discuss the mishap with anyone else**

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Days 11-20 Witness Advisory

- **Witnesses can make privileged or non-privileged statements**
  - **Don't have to offer privilege to all witnesses**
  - **SIB Pres will determine extent of promise**
    - **Based on type mishap and need to protect**
- **Required to Appear?**
  - **Military members - yes**
  - **DoD Civilian employees - yes**
  - **Civilian - no (includes NOK)**
  - **Manufacturer - no***
  - **Contractor Employees - Terms of Contract**

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Days 11-20 Witness Guidelines

- **Do Not Have Witnesses Testify Under Oath or Give Sworn Testimony**
- **<u>NO</u> Truth Serums, Hypnotic Techniques, Drugs, or Polygraph Tests**
- **Ensure Witnesses Understand That They Are Obliged to Give Honest, Good Faith Testimony**
  - **If criminal misconduct is suspected, contact HQ AFSC/JA on how to proceed**

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Days 11-20 Witness Guidelines

- **If a Witness Provides a Statement Under Medication, Add a Notation to Their Statement**
- **In Cases Where Witness Testimony Is Summarized by the Interviewer, It Must Be Clear That the Witness Was Advised of, and Understood it**
- **Not Necessary to Publish Every Statement Taken from Every Individual in the Tab U, Only Meaningful Statements**

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Days 11-20 Witness ROE

- **Commanders will make all participants available to investigators upon request of the board president.**
- **The board president will advise commanders when participants are no longer needed by the investigators.**

Safety investigators make NO determination regarding the fitness of participants to be returned to normal duties. Commanders must decide how and when participants are to be managed once their testimony is no longer needed by investigators.

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Days 11-20
Interview Techniques

- Interviews Should be Scheduled ASAP after the Mishap
- Let the Witness Repeat the Scenario Several Times Uninterrupted before Beginning Questioning
  - Includes Initial Interview by ISB
- Take Notes to Highlight Important Details for Further Questioning or Investigation
- Keep the “Interviewing Crowd” to a Minimum

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Days 11-20
Interview Techniques

- **Interviews Should Take Place As Close to the Person's Involvement As Possible**
- **Witness Should Be Able to Point to Things**
  - **T.O.s used in Performance of Duty, etc.**
  - **Consider putting MP(s) in Cockpit**
  - **Scale Model of Mishap Aircraft for "Non-Aircrew" Witnesses**
- **Use the "Language" of the Witness**
- **Take Witnesses Back to Where They Saw the Mishap**

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Days 11-20
Interview Techniques

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Days 11-20 Interviews - Problem Areas:

- **Follow-up Interviews/Game Plan**
  - **What are you trying to get out of the interview?**
- **Leading The Witness (Answering Your Own Questions)**

“So the IP said xxxx”

vs

“What did the IP say?”

- **Too Quickly Jumping To Conclusions/Ending the Interview**

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Days 11-20 Interviews - Problem Areas:

- **Which Interviews are “Credible”?**
- **Interviewers “Sharing” Information With Witnesses that Taints Witness’ Recollection (and Violates Privilege!)**
- **Interviewees “Sharing” Information with other Interviewees (Negates Privilege)**
- **Transcribing/Reviewing testimony will be most time-consuming, labor intensive duty of clerical support (7 to 1 ratio)**

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Days 11-20 Interviews – Problem Areas:

- **As a Interviewer be aware…..**
  - **Your key witness may not be able to tell you exactly what happened**
  - **The same witness may give a different story when questioned in subsequent interviews**
  - **Do not be surprised if different witnesses come up with different versions of the same event**

Given the above your witness is not necessarily lying or trying to hide something

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Murphy's Law of Witnesses

- **Regardless of the physical evidence to the contrary, at least one credible witness will come forward stating the aircraft was on fire prior to ground impact…..**
- **For every witness statement there will be an equal and opposite witness statement…..**

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Other "Interviews"

A Safety Investigation Board (SIB) investigating a mid-air is attempting to determine pilots' perceptions and techniques regarding terminology and procedures. The SIB is still in the information gathering stage and nothing asked in the survey below should be construed as implicating any blame in any way. This survey is to be anonymous. We do request qualification and hours to determine knowledge and experience levels.

Qualification_____ F-15 hours_____ Fighter hours_____

1. Pick the answer below that best describes your understanding of the term "Blind."
   a. Don't see a friendly aircraft
   b. Don't see a friendly aircraft and don't have Situational Awareness (SA)
   c. Don't see a friendly aircraft but have SA

2. Pick the answer below which best describes when you would call blind while defensive in a BFM engagement.
   a. Never have to call – attacker has responsibility for deconfliction
   b. Never have to call while SA is maintained
   c. Never have to call while maintaining a predictable flight path
   d. 5 – 10 seconds after losing sight based on SA, closure rates, and flight path alignment
   e. 2 – 5 seconds after losing sight based on SA, closure rates, and flight path alignment

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Days 11-20 Problem Areas

- "What Happened" Phone Calls, E-mails
- No Clue as to why mishap occurred vs. too many options to narrow down
- "Pet theories," Red Herrings
- Stress Levels Increasing, Early Stages of "Burnout"
- Getting Sufficient Support may or may not be an issue
- Not Continuing to ask "Why"
- Not saving evidence for AIB

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Days 11-20 Problem Areas Analysis vs. Fact

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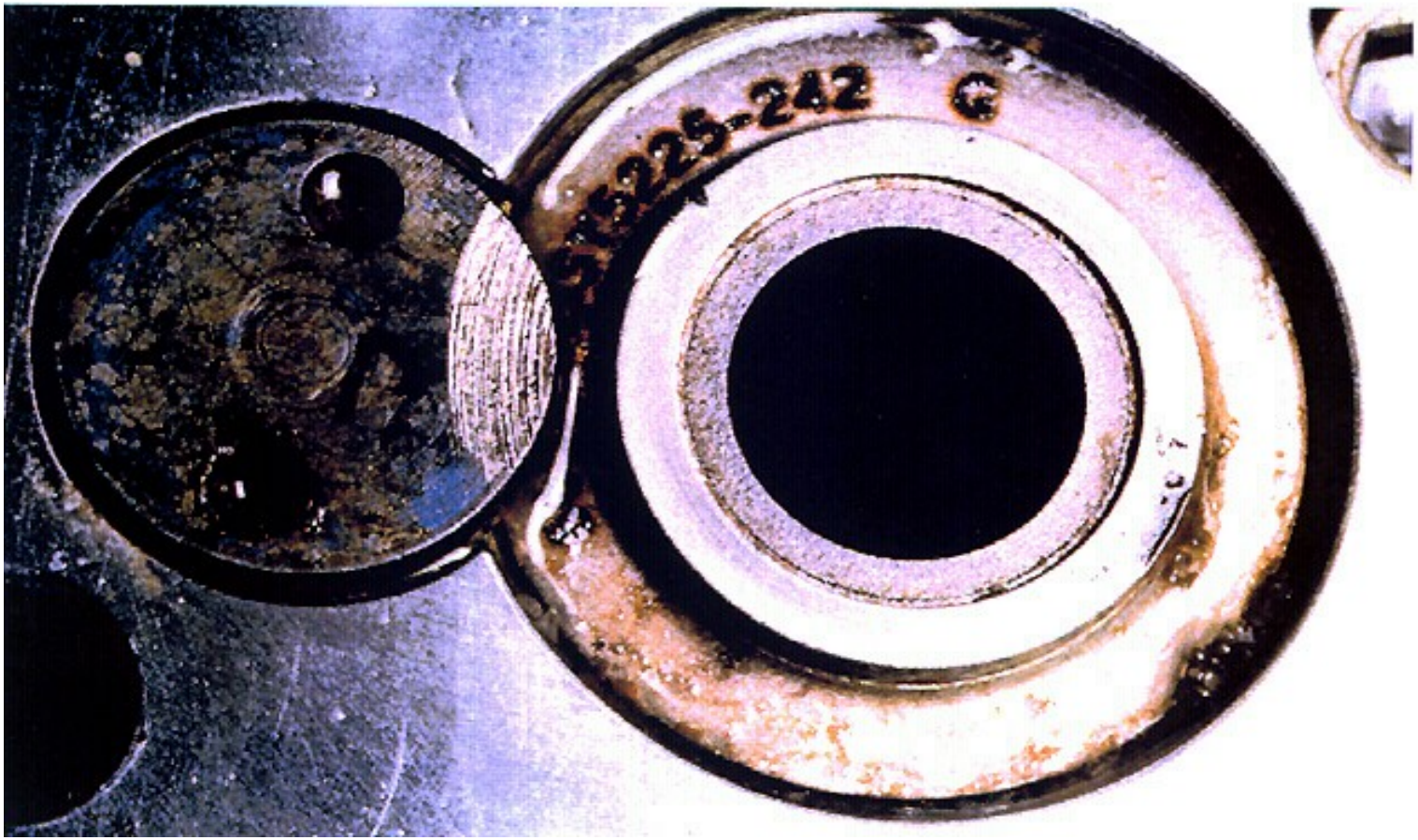
Days 11-20 Problem Areas Analysis vs. Fact

II. HOLDDOWN SCREW AND VSV PILOT VALVE SLEEVE



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Days 11-20 Problem Areas

- **Too broad a focus……**
  - **Too much emphasis on "impact angles"**
    - **Likely NOT where mishap occurred!!!!**
- **Focused on the "wrong" issue….**
  - **A-10 CFIT – Instrument Proficiency vs NVG Qual**

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Questions????